4 | A Survey of Regional Bicycle Facilities

The San Francisco Bay Area contains many components of a truly bikable region. A growing network of on-street bikeway facilities and paved inter-county trails that serve local and regional destinations; access to and on public transit to allow travel over longer distances than most people are able to bicycle; safe and convenient bicycle parking options at destinations throughout the Bay Area; programs that encourage and educate cyclists and other roadway-users; and a willingness to experiment with innovative roadway treatments and other bicycle facilities in the pursuit of a bikeway system that encourages safer and more frequent cycling.

The Regional Bikeway Network

The RBN defines the San Francisco Bay Area's continuous and connected bicycling corridors of regional significance. The primary purpose of the RBN, which includes both built and unbuilt segments, is to focus regional bicycle-related funding on the highest-priority bicycle facilities that serve regional trips, including access to transit. This approach assumes that Bay Area cities and counties prioritize the expenditure of locally generated funds and local set-asides of discretionary funds for local-serving projects, leaving many intercity, intercounty and other important bikeways of regional significance to be funded with regional discretionary sources. (See Appendix F for a summary of the countywide bicycle planning occurring in each of the nine Bay Area counties.)

A summary of the network mileage by county, including a breakdown of existing versus unbuilt mileage, is shown in Table 4.1. Appendix A provides a complete listing of all unbuilt segments in the RBN, including the estimated cost to construct each segment, while Appendix B lists all completed links.

Regional Bikeway Network Maps

Area	Page
Region	33
Alameda County	34
Contra Costa County	35
Marin County	36
Napa County	37
San Francisco	38
San Mateo County	39
Santa Clara County	40
Solano County	41
Sonoma County	42

Maps of the RBN are found later in this chapter and PDF maps can be downloaded at:

http://mtc.ca.gov/planning/bicyclespedestrians/regional.htm#bikeplan

Original link selection process

The links in the RBN described in this chapter were first identified in 2001 in conjunction with the development of the original *Regional Bicycle Plan*. During that process, a set of five criteria was developed and used to select links from among those in the Bay Area's adopted countywide bicycle networks, which are themselves subsets of locally adopted networks (see box on following page). The RBN has been updated to reflect formerly unbuilt links that have since been constructed and local decisions to replace one alignment with a superior (or more feasible) parallel route.

In many locations, the RBN is defined by corridors; exact alignments (street, path, or route) may not have yet been determined by local governments or may change based on further study. Short routes that connect regional bikeways to transit stations may not show up on printed maps due to scale, but are considered to be part of the RBN.

2001 Regional Bikeway Network Link Selection Criteria

1. Provide connections to every incorporated town and city and to unincorporated areas with populations of over 5,000 people, and between the Bay Area and surrounding regions.
2. Provide connections to the regional transit system, including multimodal terminals, ferry terminals, BART stations, commuter rail stations and Amtrak.
3. Provide connections to major activity centers such as universities, hospitals, parks, athletic venues and shopping malls.
4. Provide access within or through the major central business districts of the region.
5. Comprise part of the existing, planned or proposed Bay Trail system (an interconnected system of routes ringing San Francisco and San Pablo bays being implemented by the Association of Bay Area Governments).

According to the 2000 Bay Area Travel Survey, just one-quarter of regional bicycle trips are for commute purposes (see Table 3.3). However, a lack of reliable information about other bicycle trip purposes has led the field of bicycle planning to focus on work trips, leaving routes that are considered to be primarily recreational off of the RBN. For this update, some routes that fit this description (e.g., the northern Alameda County-Contra Costa County connection) are included in the RBN. All of the Bay Area's toll bridges are also included in the RBN.

Network modifications

Although RBN link selection criteria were not changed for this update, the update did involve an extremely data-intensive process to identify and rectify network gaps, inconsistencies and other erroneous information contained in the 2001 network. All congestion management agencies were surveyed to determine needed updates to RBN links in each county. During this process, link mileage and end-point information were added to the database. With this information, MTC staff created a RBN geographic information system (GIS) mapping layer, with attributes that distinguish built links from unbuilt links. Where local bicycle route information was not available, MTC staff turned to digital high-definition aerial photographs and the BikeMapper℠ database of existing bikeways, which is based on direct feedback from the region's cities and counties. BikeMapper℠ is available at 511.org and is described in more detail in the previous chapter.

> As of January 2008, the RBN was nearly half complete.
>
> The eight Bay Area toll bridges together comprise just 1 percent of total RBN mileage while the combined cost to provide bicycle access on the three remaining bridges without access is one-half of the total RBN cost.

San Francisco Bay Trail

The Bay Trail is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo Bays with a continuous 500-mile network of bicycling and hiking trails. To date, approximately 290 miles of the alignment—over half the Bay Trail's ultimate length—have been completed.

The planning promotion and implementation coordination of the Bay Trail is managed by the San Francisco Bay Trail Project, while land ownership and trail segment construction and maintenance is handled by cities, counties, park districts and other agencies with land-management responsibilities, often in partnership with local nonprofit organizations, citizens' groups or businesses

The Bay Trail Project is administered by the Association of Bay Area Governments (ABAG).

Completing the Network

When completed, the RBN will be 2,140 miles long, including links within the nine Bay Area counties and on the region's eight toll bridges (see Table 4.1). As of January 2008, the RBN was nearly half complete. This proportion varies considerably by county: Whereas less than one-quarter of network links in Sonoma County are built, more than 50 percent are complete in Contra Costa, San Francisco, San Mateo and Santa Clara counties. This situation is likely due to the more sparsely developed roadway networks in the North Bay, which translates to fewer, and often more expensive, bikeway alignment options.

The eight Bay Area toll bridges together comprise just 1 percent of total RBN mileage; however, the combined cost to provide bicycle access on the three bridges where it does not currently exist and where it is not scheduled to be built (the Richmond/San Rafael Bridge, the West Span of the San Francisco/Oakland Bay Bridge and the San Mateo/Hayward Bridge) is one-half of the total RBN cost (see Tables 4.2 and 5.1).

When evaluating the completeness of the RBN, it is important to remember the context of this 2,140-mile chain: the RBN actually represents a small portion of all planned Bay Area bikeways. Furthermore, it does not include the myriad investments beyond regional bikeway projects necessary to create a truly bicycle-friendly region, including bicycle parking, signage, transit accommodations, facility maintenance and operations, and encouragement and education programs (see Chapter 5 for further discussion). If implemented at the same time as the RBN, these other projects, programs, and planning efforts will create a safe and inviting bicycling environment for hardy bicycle commuters, those who shop by bike, occasional and avid recreational cyclists, families with children, and anyone whose travels can conveniently occur by bike.

Table 4.1: Completion status of Regional Bikeway Network

County	Total built mileage[1]	Total unbuilt mileage[2]	Total mileage[3]	% Built
Alameda	161	187	348	46%
Contra Costa	181	138	319	57%
Marin	37	81	118	31%
Napa	39	61	99	39%
San Francisco	58	47	106	55%
San Mateo	141	104	245	57%
Santa Clara	241	182	423	57%
Solano	71	110	180	39%
Sonoma	59	214	273	22%
Toll bridges[4]	15	14	29	51%
TOTAL	**1,002**	**1,138**	**2,140**	**47%**

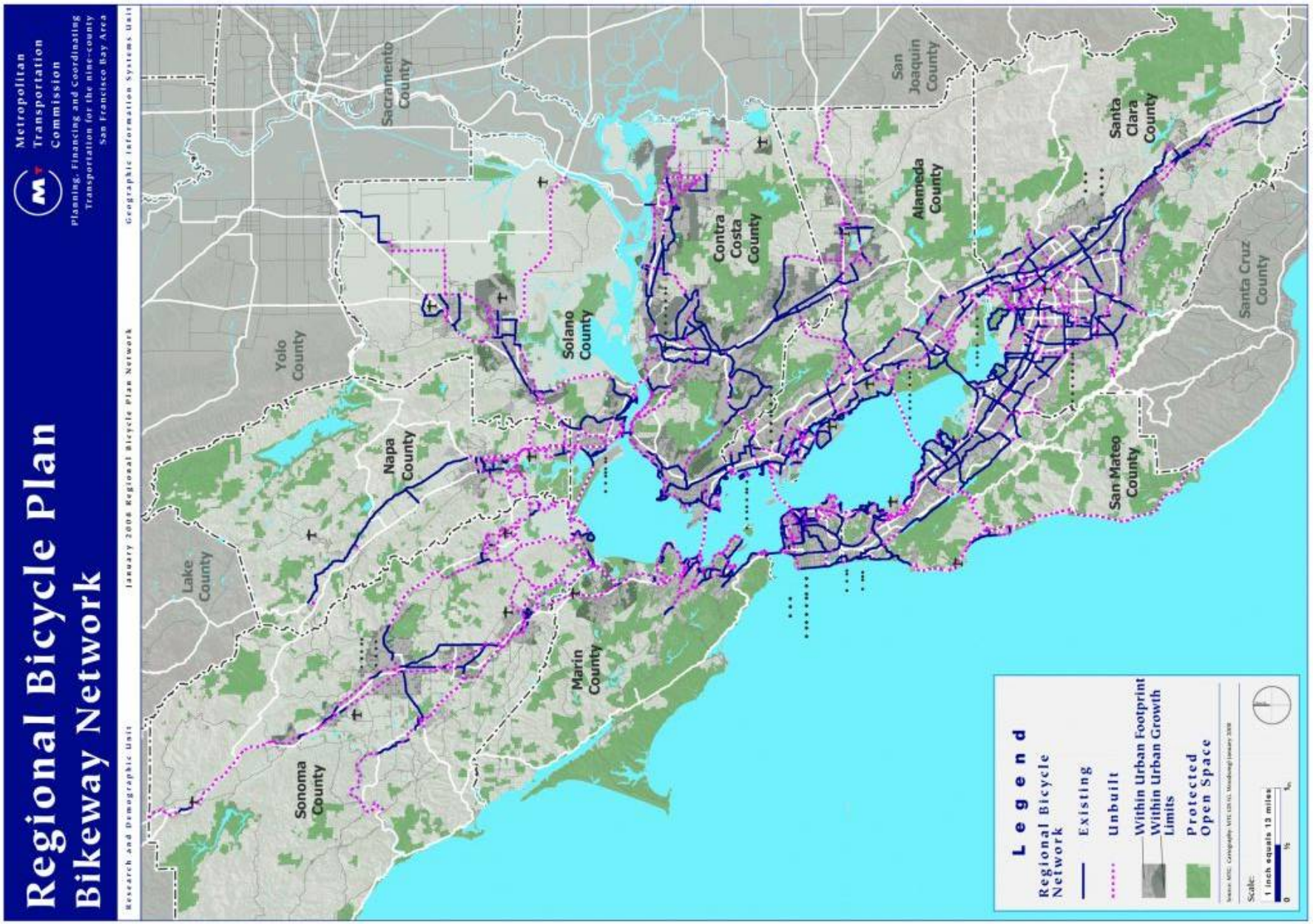
1. Total built mileage = Built links (from Appendix B) plus built and fully funded segments of "unbuilt" links (from Appendix A)
2. From Appendix A.
3. Mileage includes all Bay Trail spine segments.
4. The RBN includes pathways on all eight Bay Area toll bridges, including those that are built and unbuilt, but does not call for shuttle or ferry service on these routes.

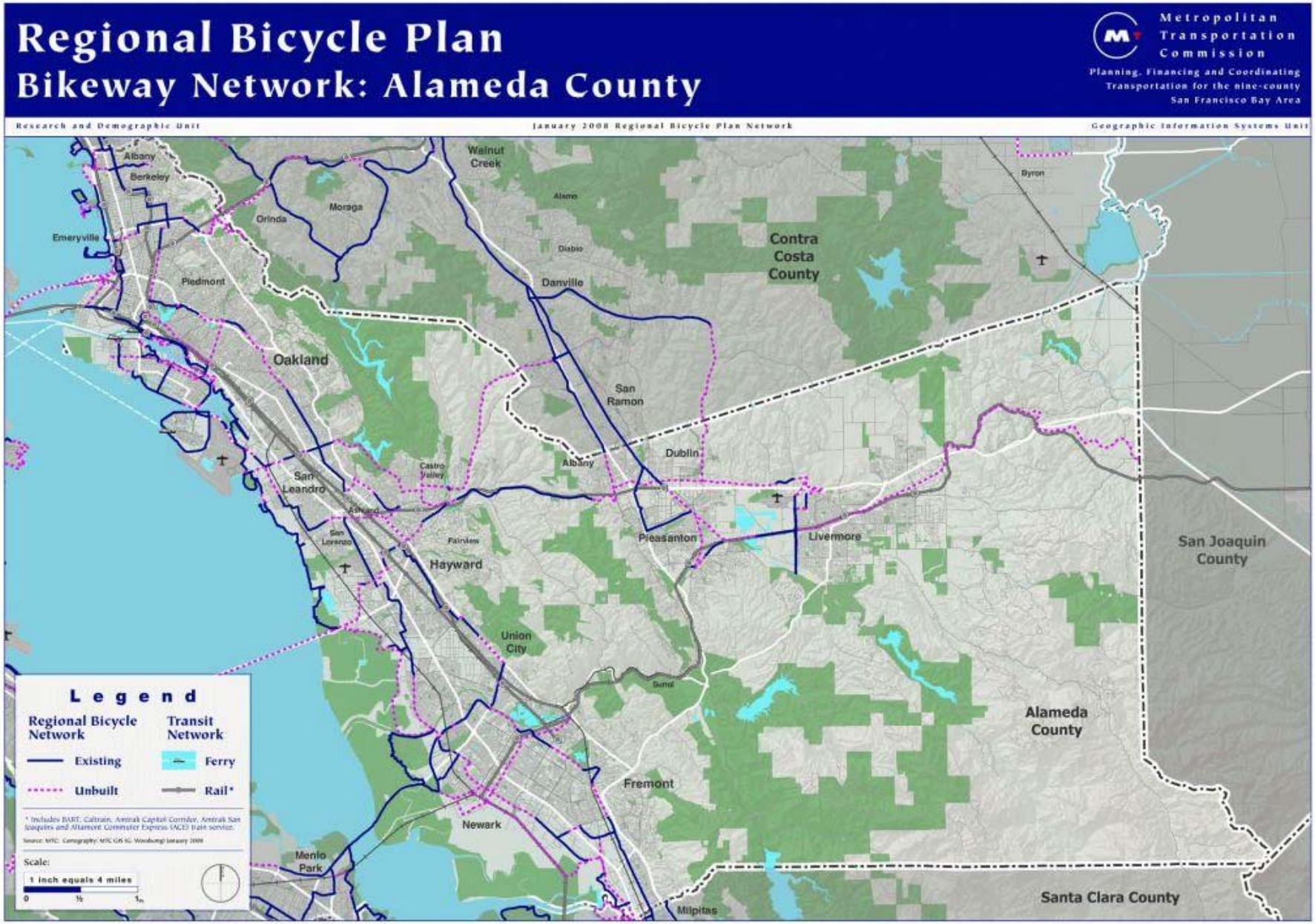
Built mileage plus unbuilt mileage may not sum to total mileage due to rounding.

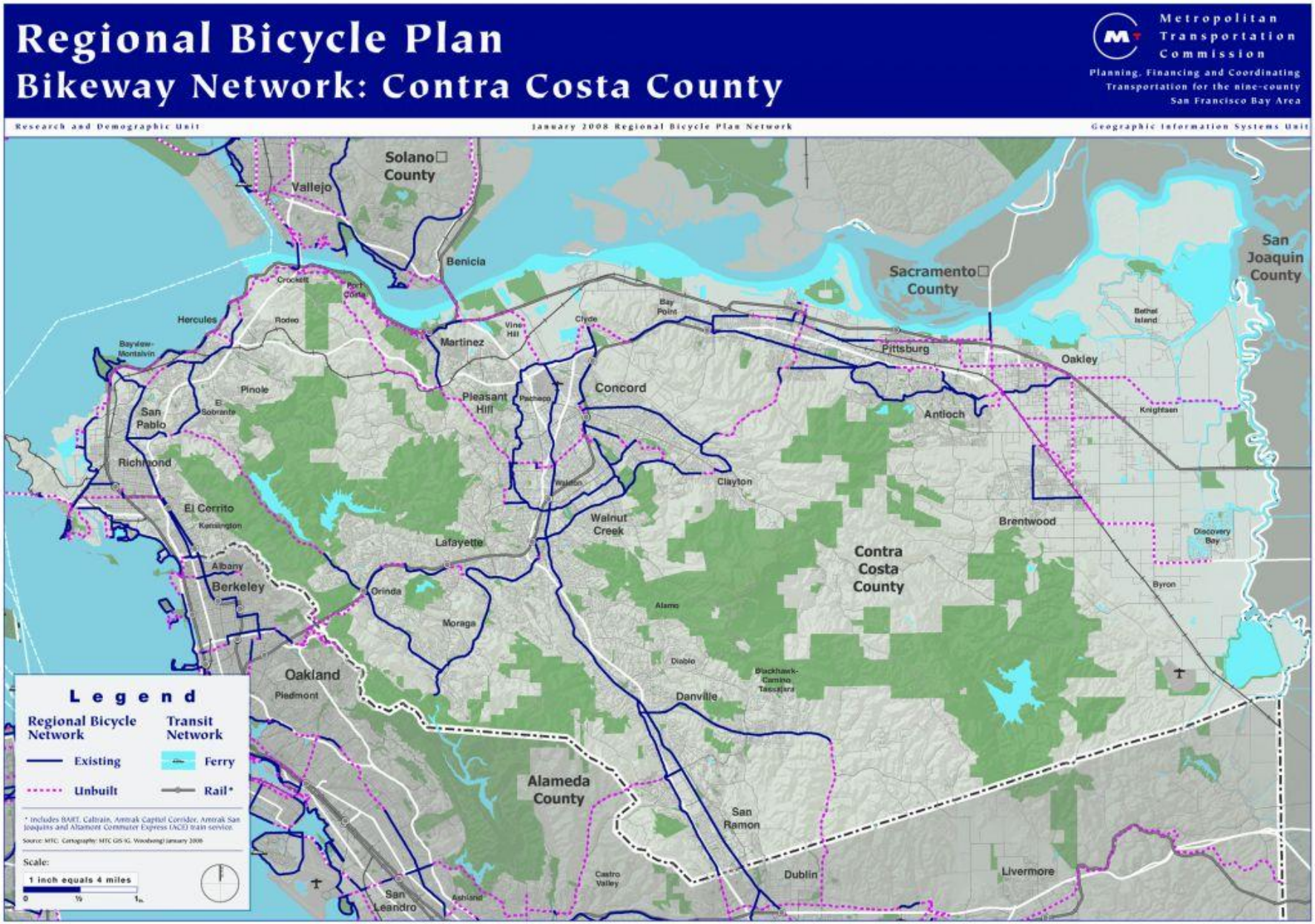
Table 4.2: Regional Bikeway Network toll bridge links (built and unbuilt miles)

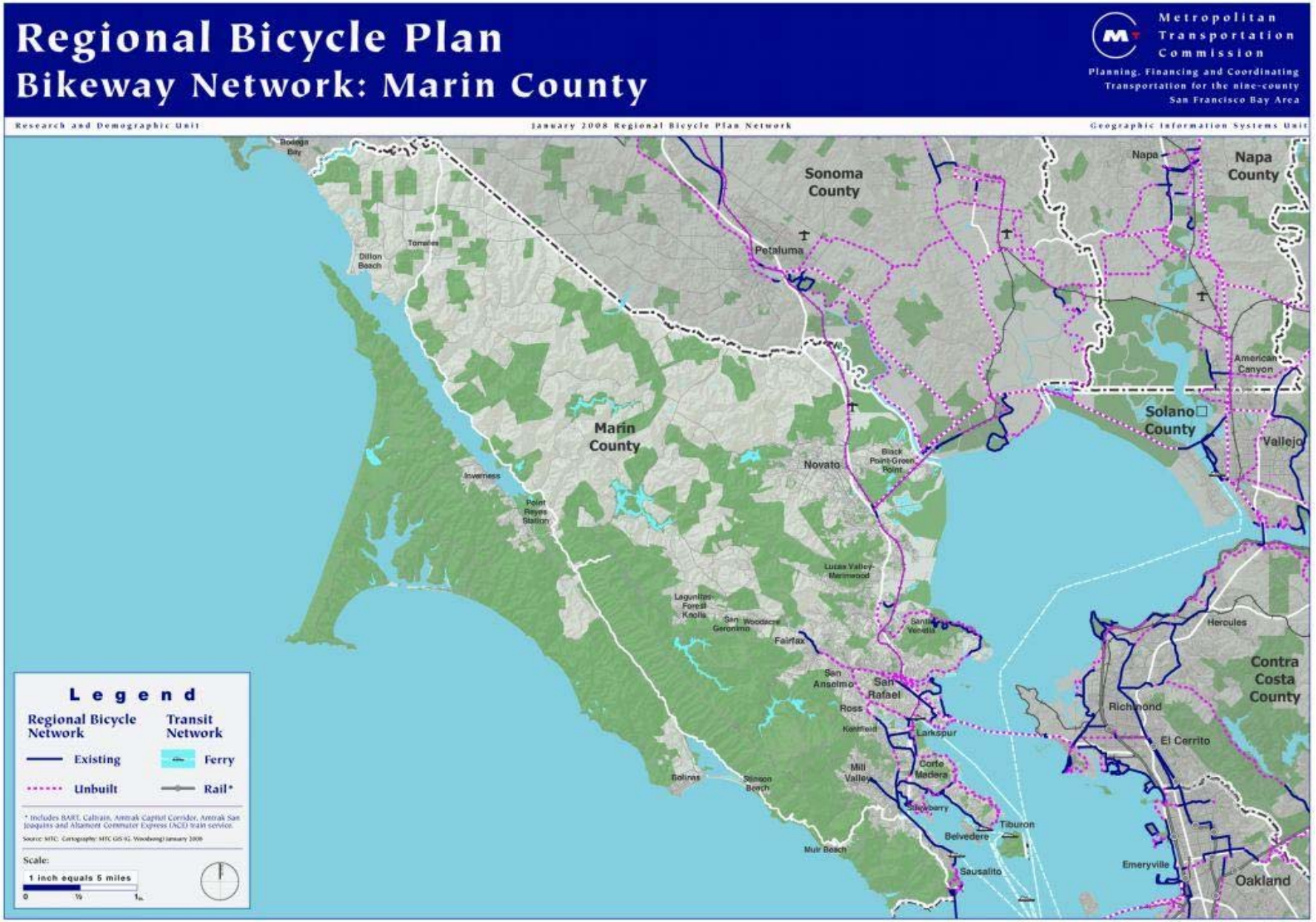
Bridge	Built mileage	Unbuilt mileage	Total mileage	% Built mileage
Antioch	1.0	0.0	1.0	100%
Benicia/Martinez[1]	1.8	0.0	1.8	100%
Carquinez	1.2	0.0	1.2	100%
Dumbarton	1.6	0.0	1.6	100%
Richmond/San Rafael	0.0	3.9	3.9	0%
San Francisco/Oakland Bay[2]	7.0	1.9	8.9	79%
San Mateo/Hayward	0.0	8.2	8.2	0%
Golden Gate	1.9	0.0	1.9	100%
Totals	**14.5**	**14.0**	**28.5**	**51%**

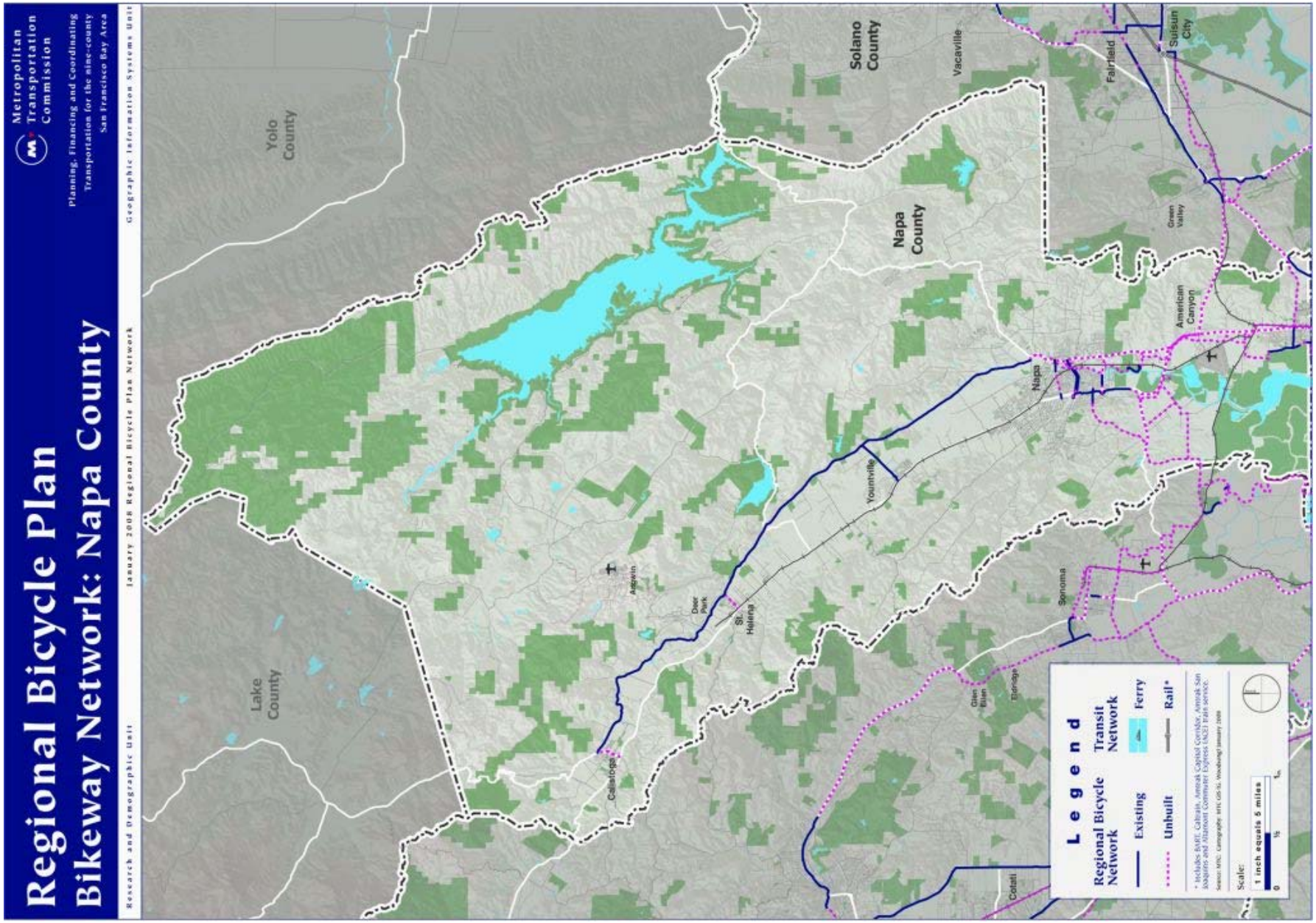
1. At publication time, a bicycle/pedestrian pathway on the west side of the original Benicia/Martinez span was fully funded and planned for construction in 2009, and is therefore counted as built in this table.
2 At publication time, a bicycle/pedestrian pathway on the new East Span of the Bay Bridge was fully funded and under construction, and is therefore counted as built in this table.

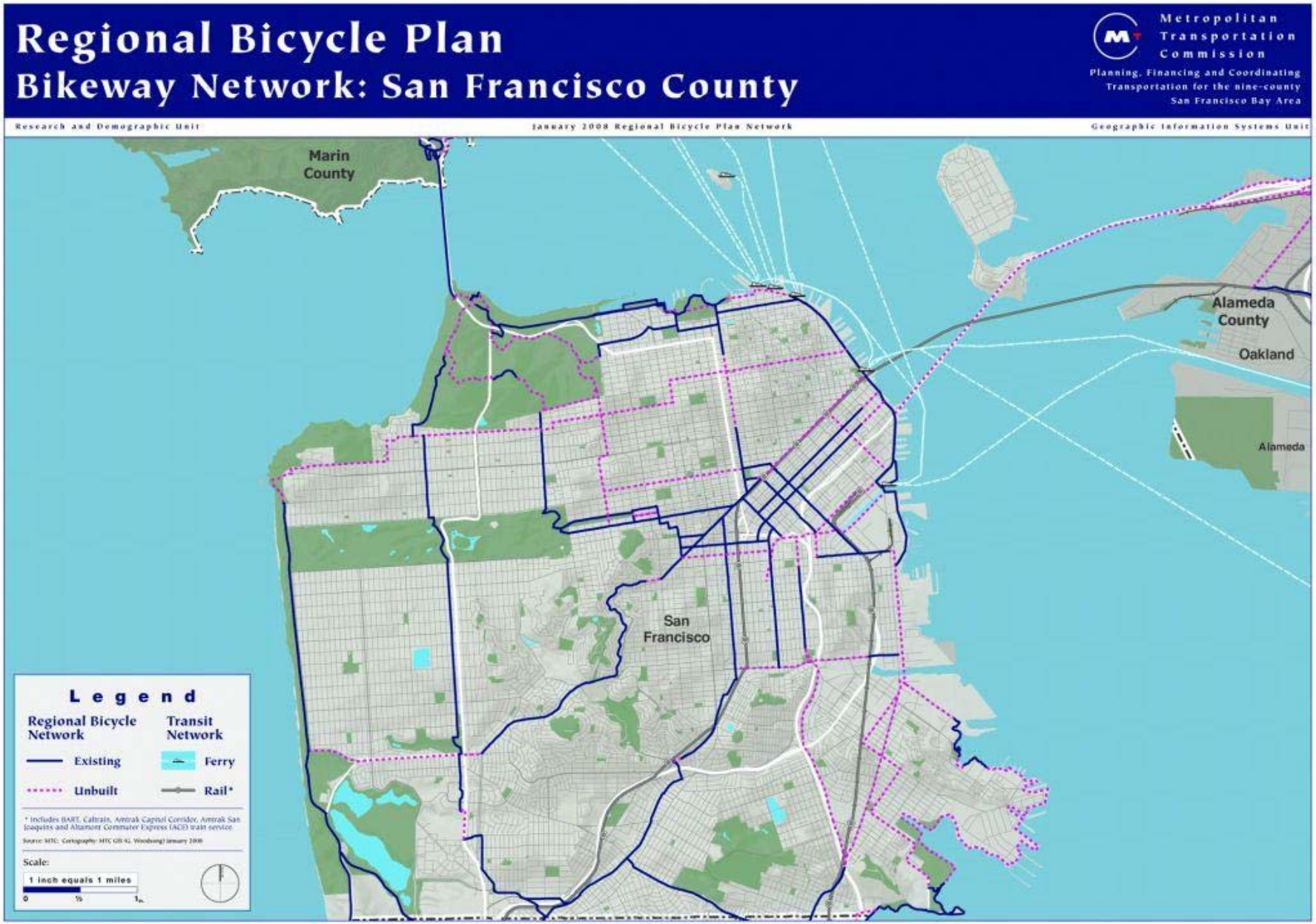

Regional Bicycle Plan
Bikeway Network
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Sonoma County
Lake County
Napa County
Yolo County
Solano County
Marin County
Sacramento County
Contra Costa County
San Joaquin County
Alameda County
Santa Clara County
San Mateo County
Santa Cruz County
Legend
Regional Bicycle Network
Existing
Unbuilt
Within Urban Footprint
Within Urban Growth Limits
Protected Open Space
Scale:
1 inch equals 13 miles

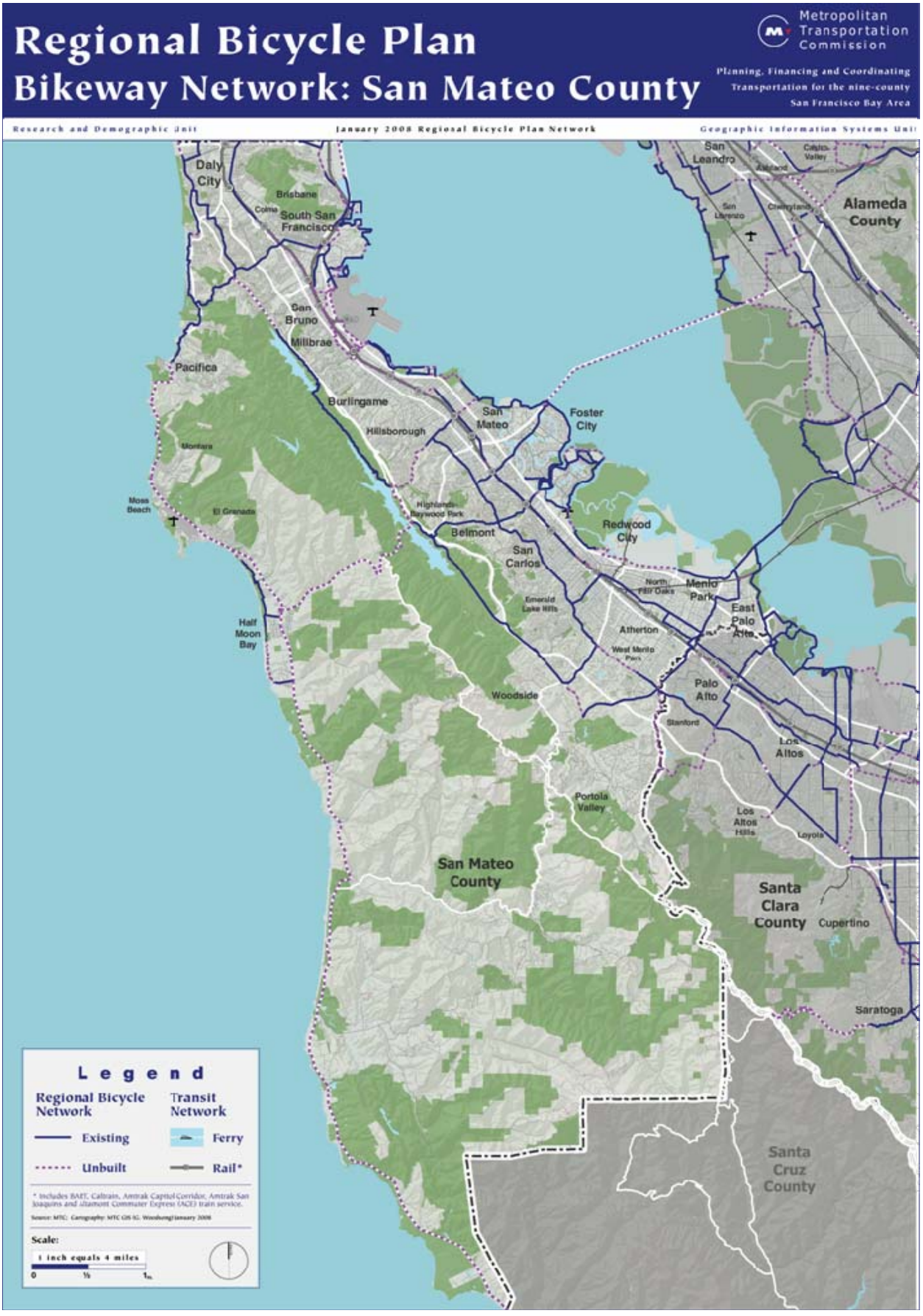

Regional Bicycle Plan
Bikeway Network: Alameda County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Albany
Berkeley
Emeryville
Piedmont
Oakland
Orinda
Moraga
Walnut Creek
Alamo
Diablo
Danville
Contra Costa County
Byron
San Ramon
Dublin
Pleasanton
Livermore
Castro Valley
San Leandro
San Lorenzo
Fairview
Hayward
Union City
Sunol
Fremont
Newark
Menlo Park
Milpitas
Alameda County
San Joaquin County
Santa Clara County
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Scale:
1 inch equals 4 miles
0
½
1 in.

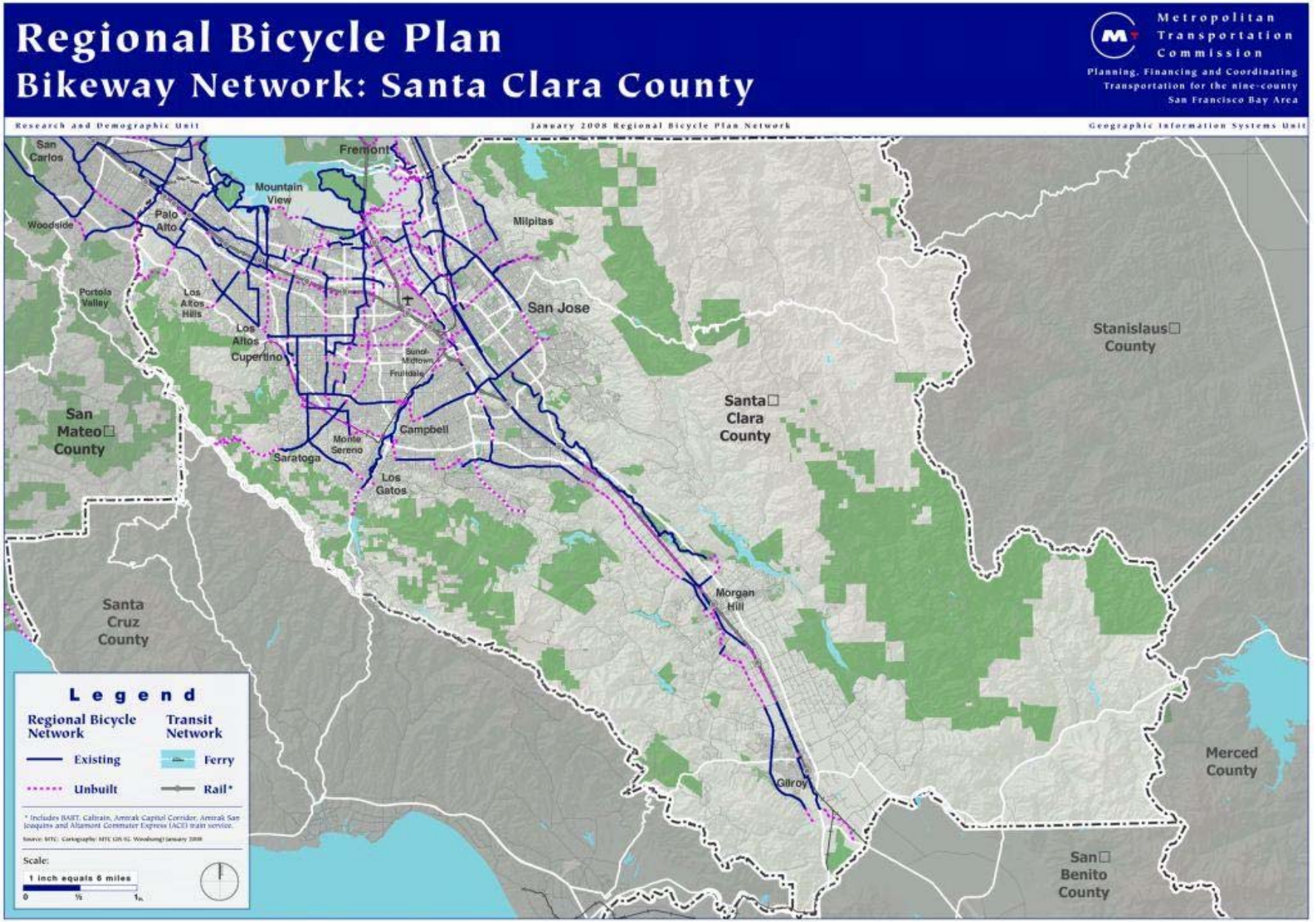

Regional Bicycle Plan
Bikeway Network: Contra Costa County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Solano County
Vallejo
Benicia
Crockett
Port Costa
Hercules
Rodeo
Martinez
Vine Hill
Clyde
Bay Point
Sacramento County
San Joaquin County
Bethel Island
Pittsburg
Oakley
Bayview-Montalvin
Pinole
El Sobrante
San Pablo
Pleasant Hill
Pacheco
Concord
Antioch
Knightsen
Richmond
Clayton
El Cerrito
Kensington
Walnut Creek
Brentwood
Discovery Bay
Lafayette
Albany
Berkeley
Orinda
Contra Costa County
Byron
Alamo
Moraga
Diablo
Blackhawk-Camino Tassajara
Oakland
Piedmont
Danville
Alameda County
San Ramon
Castro Valley
Dublin
Livermore
San Leandro
Ashland
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC. Cartography: MTC GIS Xu, Woodbury) January 2008
Scale:
1 inch equals 4 miles
0
½
1 in.

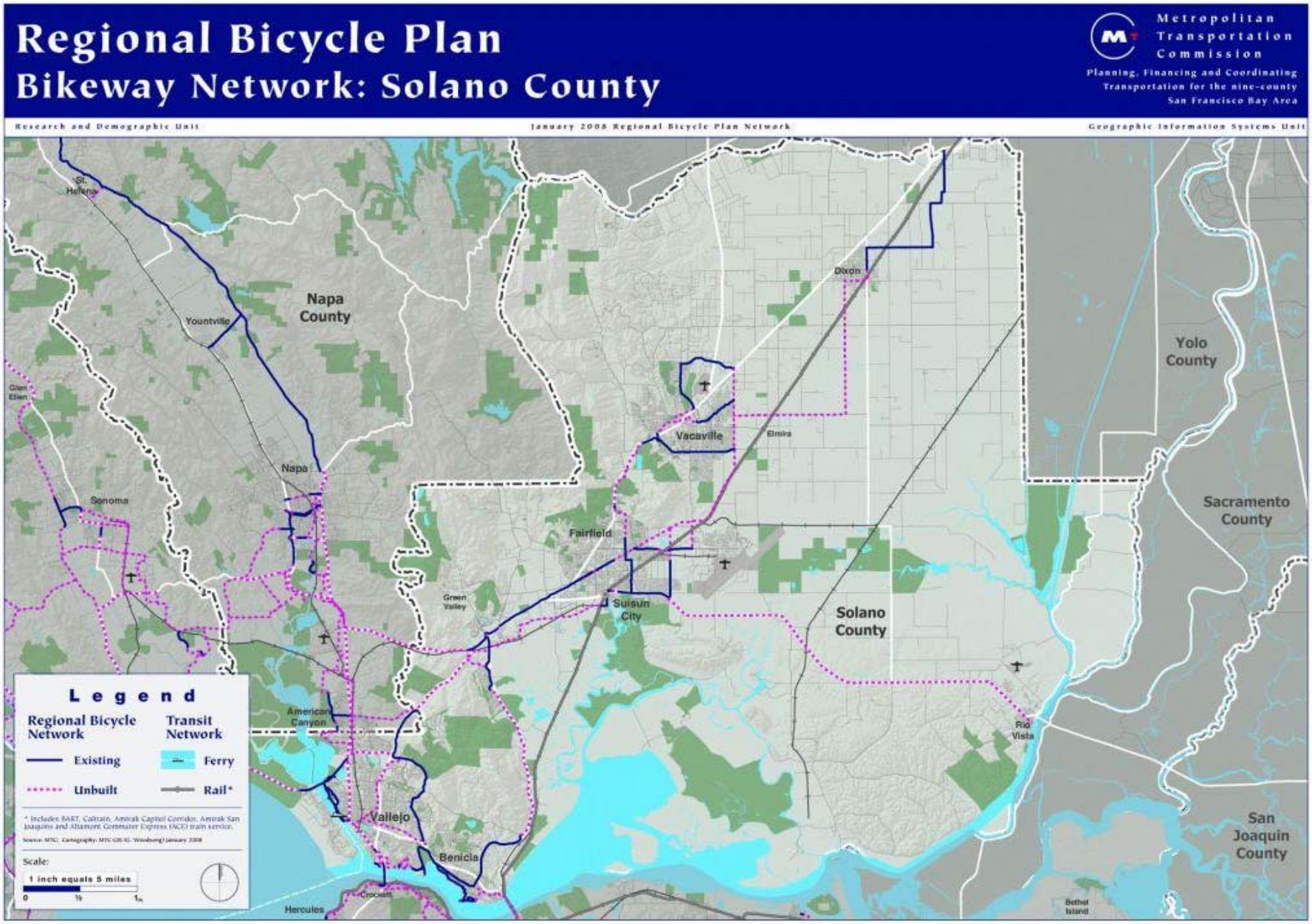

Regional Bicycle Plan
Bikeway Network: Marin County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Sonoma County
Napa
Napa County
Petaluma
Tomales
Dillon Beach
Bodega Bay
American Canyon
Solano County
Vallejo
Marin County
Novato
Black Point-Green Point
Inverness
Point Reyes Station
Lucas Valley-Marinwood
Lagunitas-Forest Knolls
San Geronimo
Woodacre
Fairfax
Santa Venetia
Hercules
Contra Costa County
San Anselmo
San Rafael
Ross
Kentfield
Larkspur
Richmond
El Cerrito
Corte Madera
Mill Valley
Bolinas
Stinson Beach
Strawberry
Tiburon
Belvedere
Muir Beach
Sausalito
Emeryville
Oakland
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC. Cartography: MTC GIS (G. Woodberg) January 2008
Scale:
1 inch equals 5 miles
0
½
1 in.

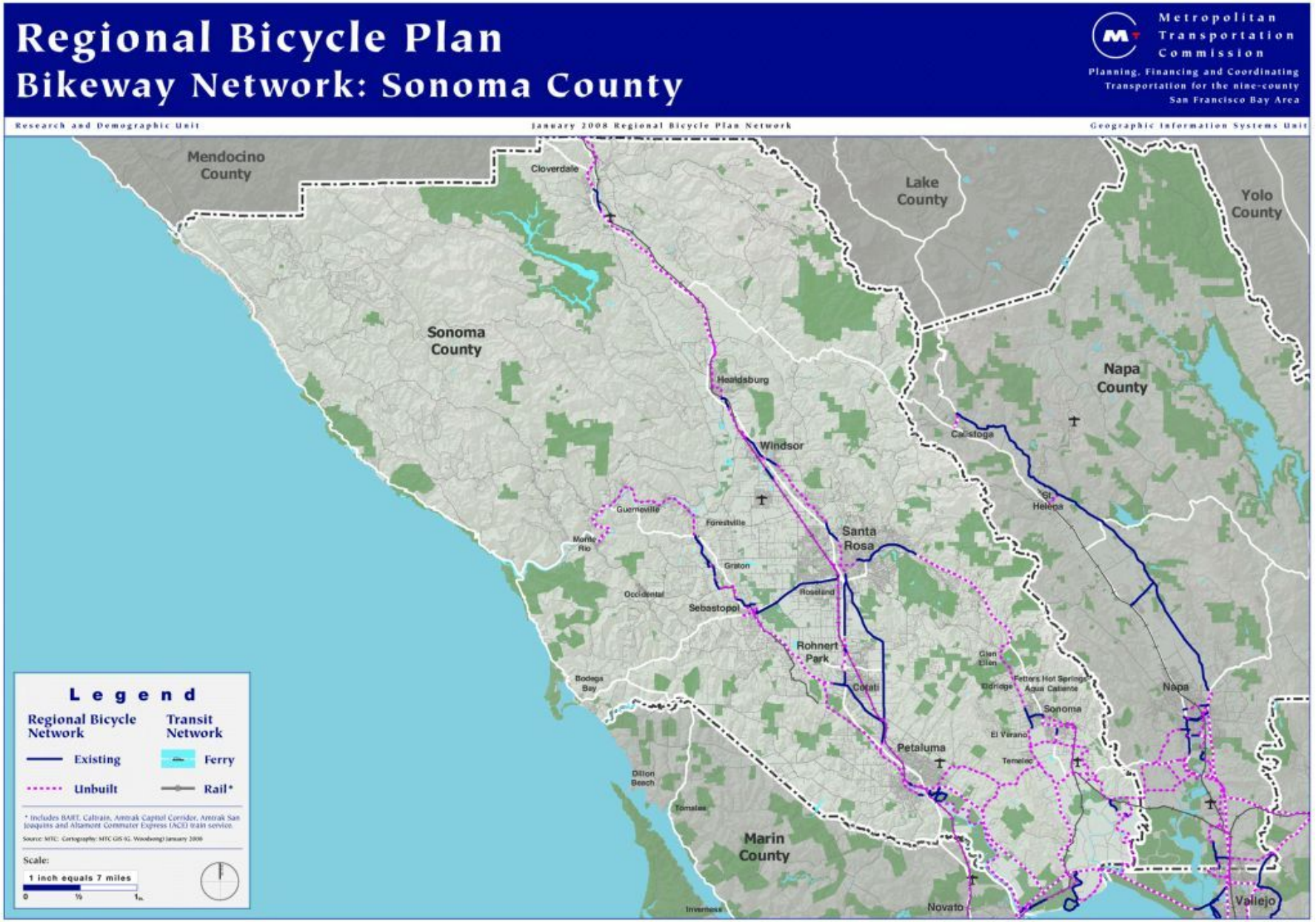

Regional Bicycle Plan
Bikeway Network: Napa County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Lake County
Yolo County
Solano County
Napa County
Vacaville
Fairfield
Suisun City
Green Valley
American Canyon
Napa
Yountville
St. Helena
Deer Park
Angwin
Calistoga
Sonoma
Glen Ellen
Eldridge
Cotati
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC Cartography Unit, GIS-56, Woodward January 2008
Scale:
1 inch equals 5 miles
0
½
1


Regional Bicycle Plan
Bikeway Network: San Francisco County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Marin County
Alameda County
Oakland
Alameda
San Francisco
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC Cartography: MTC GIS-G. Woodward January 2008
Scale:
1 inch equals 1 miles
0
½
1 mi.


Regional Bicycle Plan
Bikeway Network: San Mateo County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Daly City
Brisbane
Colma
South San Francisco
San Bruno
Millbrae
Pacifica
Burlingame
Hillsborough
San Mateo
Foster City
Montara
Moss Beach
El Granada
Highlands-Baywood Park
Belmont
Redwood City
San Carlos
North Fair Oaks
Menlo Park
Emerald Lake Hills
East Palo Alto
Atherton
West Menlo Park
Half Moon Bay
Woodside
Palo Alto
Stanford
Los Altos
Portola Valley
Los Altos Hills
Loyola
San Mateo County
Santa Clara County
Cupertino
Saratoga
Santa Cruz County
San Leandro
Castro Valley
Ashland
San Lorenzo
Cherryland
Alameda County
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC. Cartography: MTC GIS 1G. Woodward January 2008
Scale:
1 inch equals 4 miles
0
½
1 in.


Regional Bicycle Plan
Bikeway Network: Santa Clara County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
San Carlos
Fremont
Mountain View
Woodside
Palo Alto
Milpitas
Portola Valley
Los Altos Hills
San Jose
Los Altos
Cupertino
Sunol-Midtown
Fruitdale
Stanislaus County
San Mateo County
Santa Clara County
Campbell
Monte Sereno
Saratoga
Los Gatos
Morgan Hill
Santa Cruz County
Gilroy
Merced County
San Benito County
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Scale:
1 inch equals 6 miles
0
½
1 in.


Regional Bicycle Plan
Bikeway Network: Solano County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
St. Helena
Napa County
Yountville
Glen Ellen
Sonoma
Napa
Dixon
Yolo County
Vacaville
Elmira
Sacramento County
Fairfield
Green Valley
Suisun City
Solano County
American Canyon
Rio Vista
Vallejo
Benicia
Crockett
Hercules
Bethel Island
San Joaquin County
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Scale:
1 inch equals 5 miles
0
½
1 in.


Regional Bicycle Plan
Bikeway Network: Sonoma County
Metropolitan Transportation Commission
Planning, Financing and Coordinating Transportation for the nine-county San Francisco Bay Area
Research and Demographic Unit
January 2008 Regional Bicycle Plan Network
Geographic Information Systems Unit
Mendocino County
Lake County
Yolo County
Sonoma County
Napa County
Marin County
Cloverdale
Healdsburg
Windsor
Guerneville
Forestville
Monte Rio
Graton
Occidental
Sebastopol
Roseland
Santa Rosa
Rohnert Park
Cotati
Petaluma
Bodega Bay
Dillon Beach
Tomales
Inverness
Novato
Calistoga
St. Helena
Napa
Sonoma
El Verano
Glen Ellen
Oldridge
Fetters Hot Springs Agua Caliente
Temelec
Vallejo
Legend
Regional Bicycle Network
Existing
Unbuilt
Transit Network
Ferry
Rail*
* Includes BART, Caltrain, Amtrak Capitol Corridor, Amtrak San Joaquins and Altamont Commuter Express (ACE) train service.
Source: MTC Cartography: MTC GIS (G. Woodward) January 2008
Scale:
1 inch equals 7 miles
0
½
1 in.

Bicycle access to public transit

Despite the large, hilly, and water-constrained geography in the Bay Area, bicycling can truly be a transportation alternative to the single-occupant motor vehicle when conveniently linked with the region's buses, trains, and ferries via secure and plentiful bicycle parking at stations and bicycle access onboard transit vehicles. The combination of bicycling and public transit offers many Bay Area residents, workers and visitors perhaps the best alternative to the flexibility and convenience of the single-occupant vehicle as a result of lower costs, reduced parking stress and reduction of contributions to greenhouse gases. Many portions of the region are well-served by bus, rail and ferry operators that traverse long distances, climb steep hills, and provide access to and across barriers that prevent bicycle travel. With a bicycle, one can avoid the sometimes necessary, time-consuming transfers at either or both ends of a transit ride.

Bicycling can be the most convenient method of reaching a transit stop, station or terminal, and ultimate destination. The bicycle offers the independence of the automobile and costs less than auto parking and gas. On transit systems that allow bicycles onboard, the same bike can be used on the origin and destination ends of the trip, or transit riders may have two bicycles, one for each end of the trip. Workplace showers can allow longer-distance commuters to bicycle to work, and arrive at their desk fresh and clean.

> The combination of bicycling and public transit offers perhaps the best alternative to the flexibility and convenience of the single-occupant vehicle.

For cyclists whose destination is within convenient walking distance of transit, plentiful, secure and rain-protected bicycle parking — which is much less expensive for transit operators to provide than auto parking — gives bicycle/transit commuters an alternative to bringing their bikes onboard. This leaves more space for other transit passengers and may increase the attractiveness of bicycling to transit for those who, due to the cumbersome and sometimes dirty nature of carrying one's bicycle onboard, may only consider biking if they can stow their bicycle safely at public transit stations.

In addition to onboard access and bicycle parking, another aspect of bicycle-related transit planning is the route a cyclist takes to reach transit stops and stations. Unlike the transit facilities and vehicles, local roads and pathways are largely controlled by cities and counties, not by transit operators. Therefore, safer and more convenient bicycle access to public transit facilities often requires the cooperation and coordination of multiple agencies.

This section summarizes the policies and practices of the Bay Area's 10 largest transit operators with respect to planning for and accommodating bicycles at stops and stations and onboard transit vehicles.

Transit agency bicycle coordinators

Transit agencies with an in-house bicycle planner on staff — often referred to as a "bicycle coordinator" — have a much greater likelihood of operating systems that welcome bicyclists, and of working with their bicycling passengers to continually improve bicycle parking and bike access to and on their systems than systems that do not have a bicycle coordinator. Effective coordinators bridge the information gap between experienced bicycle/transit riders and transit system managers, who strive to operate systems that meet the needs of all passengers. Bicycle coordinators have the time and expertise to listen to cyclists' needs and to explain, and sometimes work to change, transit policies. Bike coordinators often staff transit bicycle advisory committees (BACs), an effective forum for regular communication between bicyclists and transit systems. One of their most important roles is to apply for grant funds and manage project implementation.

Of the transit operators surveyed, only the Bay Area Rapid Transit (BART) District and VTA have full-time in-house bicycle planning staff (see Table 4.3). Although Caltrain does not have a staff bicycle coordinator, the agency has a BAC that is staffed by their deputy director of rail planning. Caltrain also hires contract bicycle planners to perform some of the intermittent functions of a bike coordinator, such as developing a bicycle plan and inventorying bicycle parking at stations. Golden Gate Transit planning staff whose duties include bicycle coordination also have professional bicycle planning expertise. San Francisco Muni does not have a staff bicycle planner, but the City Bicycle Program advises on many Muni projects.

Transit agency bicycle planning

Regional transit agencies conduct planning for bicycles in various ways (see Table 4.3). AC Transit does not have a bicycle plan, but intends to develop a bicycle parking plan. BART and VTA both have stand-alone bicycle plans. Caltrain has hired a contract planner and consultants to develop the agency's first-ever bicycle plan. The published planning documents of Amtrak, County Connection, Golden Gate Transit, SamTrans, and the Water Emergency Transportation Authority (WETA) consider bicycle access, both to their stops/stations and on their vehicles.

> Effective bicycle coordinators bridge the information gap between experienced bicycle/transit riders and transit system managers, who strive to meet the needs of all passengers.

Bicycle parking at transit facilities

Public transit passengers who bicycle to their stop, station or terminal need to be assured of secure and weather-protected bicycle parking (see "New methods of bicycle parking" section later in this chapter). Many Bay Area transit operators offer a variety of bicycle parking appropriate for the day-long or occasional overnight stays of bicycle/transit users. These include covered bicycle racks that are highly visible to deter theft and vandalism;

individually rented, key-operated bicycle lockers; reserved or on-demand electronic lockers; and attended or automated bike stations.

It is in the interest of transit operators to provide good long-term bicycle parking because it is considerably less expensive to construct than is automobile parking. Regional and statewide funds are available for bicycle parking (see "Costs and Revenue" chapter).

Perhaps the most important element from the transit operator's perspective is that every bicycle that is parked at the station is one fewer that needs to be accommodated onboard. Fewer bikes on a given transit vehicle mean faster boarding and, therefore, faster travel times and better schedule adherence, more space for all passengers (and their luggage), fewer conflicts with passengers with disabilities (in cases where bicycles are stored in the wheelchair tie-down area), and fewer resources needed for transit maintenance and cleaning of transit vehicle interiors.

Inventorying what type of (and how much) bicycle parking is available at each transit stop, station and terminal throughout the region is needed. Absent this accounting, this section identifies which transit operators are tracking their supply, an important first step toward providing adequate bicycle parking (see Table 4.3).

County Connection, SamTrans, Muni and AC Transit do not provide bicycle parking at bus stops; and the Water Emergency Transportation Authority (WETA) has not yet built its first ferry terminal, but bicycle parking is being incorporated into its design. Bike parking at Amtrak stations is usually administered by local jurisdictions.

Of the transit agencies surveyed that operate bicycle parking at their facilities, all keep track of bicycle parking to some degree. BART and Caltrain have, perhaps, the most detailed bicycle parking inventories in the region: BART's includes capacity and average occupancy and is updated annually, while Caltrain's covers the number and occupancy of bicycle lockers and rack spaces, but is updated less regularly. VTA also has an accurate bicycle locker inventory and is updating its bicycle rack inventories at light-rail stations, transit centers and park-and-ride lots. Golden Gate Transit updates its inventory of bicycle racks at bus stops, transit centers and ferry terminals in conjunction with the *Short- Range Transit Plan* update.

Onboard policies

All transit operators surveyed accommodate the transport of bicycles, with some restrictions based on demand and time of day (see Table 4.3). While some policies are common among most transit operators, most differ by operator and, within operators, by vehicle type. All operators permit folded bicycles onboard all vehicles

at any time. Notably, many transit operators are switching to low-floor or level-boarding vehicles to improve access for disabled passengers. This practice has the added benefit of making it easier to bring bicycles onboard.

Common onboard policies and practices

All Bay Area transit operators surveyed have a policy of not charging additional fares for bicycles. Each also limits bicycle access in some way, whether by time of day, the location inside or on the vehicle where bicycles must be stowed or the number of bikes per vehicle. Although operators have a variety of policies in place to guide how, where and when bicycles may be brought onboard transit vehicles, all have policies — such as asking bicyclists not to board a vehicle that is already too crowded or to not ride on platforms — that rely on bicyclists' common sense to prevent conflicts with other passengers.

Onboard bus policies and equipment

With limited exceptions, the buses of all operators surveyed are equipped with front-mounted bicycle racks, each with a capacity of two or three bikes. Since these racks first gained popularity in the early 1990s, transit operators and other vendors have modified their design to overcome driver concern about the racks obscuring headlights and other operational issues. Although front-mounted racks allow bicyclists to travel long distances with their bicycles, their limited capacity reduces reliability for cyclists, who don't know whether or not the bus they're waiting for will be able to carry their bike until it arrives. Other drawbacks of these racks are that they can be confusing to first-time users, and that cyclists must be strong enough to mount and dismount their own bicycles, which also discourages use for some cyclists.

> Many transit operators are switching to low-floor or level-boarding vehicles to improve access for disabled passengers, which has the added benefit of making it easier to bring bicycles onboard.

Muni's newer models of diesel and trolley buses are equipped with front-mounted bicycle racks. SamTrans, VTA and County Connection buses are also equipped with racks. In addition, these operators also allow a maximum of two bicycles inside their buses, if the exterior rack is filled, the bus is not already too crowded, and there are not already wheelchairs in the tie-down areas.

Three-quarters of Golden Gate Transit's fleet is equipped with front-mounted racks. (The Richmond-San Rafael Bridge routes also allow two additional bicycles onboard, subject to the same crowding exceptions described above.) The remaining 25 percent of Golden Gate's bus fleet is comprised of 45-foot-long vehicles, which accommodate bicycles in the under-floor luggage compartments. Due to the need to slide out these under-carriage racks, bicycles can only be boarded and alighted at locations with sufficient space (locations are listed on the Golden Gate Transit District Web site). This combination of technologies means that all Golden Gate Transit buses can each accommodate a minimum of two bicycles.

In addition to front-mounted racks, AC Transit's transbay commuter coaches each

accommodate two bikes in the cargo bays when the front rack is full. Four bikes can also be stored in custom-made undercarriage racks on selected AC Transit commuter coaches crossing the San Mateo-Hayward and Dumbarton bridges.

Loading a bicycle onto the luggage bay of an AC Transit transbay bus

Onboard rail and ferry policies and equipment

BART allows bicycles in all cars except the first, and on all trains except those traveling in the peak direction during commute hours. The commute-trip restriction frees up standing room for additional non-cycling passengers, but also creates a significant impediment to bicycle/transit use, particularly for commute trips. Bicycles are not allowed on crowded trains at any time.

BART is currently testing various new seating configurations, which all remove some seats to create more space for priority bicycle storage (see photo below of first test of BART's BikeSpace program). Additional space for bicycles is also being considered by BART in the preliminary designs for new rail cars.

BART's experimental BikeSpace seat configuration

All Capitol Corridor and San Joaquin rail cars are equipped with bicycle racks that collectively hold between 12 and 22 bicycles per train, depending on the type and number of cars used on a particular train. The Capitol Corridor and San Joaquin promote the ability to bring bikes onboard and allow bicycles to be stored inside the cars without being restrained in a rack when these racks are full.

Caltrain provides dedicated bicycle cars that are located at the northern end of all trains. Each bike car can accommodate either 16 (Bombardier train sets) or 32 (Gallery train sets) bicycles. Today's fleet is 80 percent Gallery cars and 20 percent Bombardier cars. Through time, Caltrain plans to replace the Gallery cars (and expand the vehicle fleet) with new rolling stock that may have less onboard bicycle capacity. Caltrain has promoted a destination tag system to expedite bicycle stacking, boarding and alighting. There are no peak-period restrictions on bringing bicycles on board Caltrain vehicles. Despite substantial bicycle capacity, Caltrain attracts more passengers who want to bring their bicycles onboard than can be accommodated. In response, the agency is reviewing operational policies and technology

BICYCLE ACCESS ON RAIL

Rail passengers who use a bicycle on both ends of their trip consider the ability to bring a bicycle onboard to be essential. There are three primary barriers to onboard bicycle carriage:

Space constraints. Since one bicycle can occupy the same amount of space as one or more passengers, rail systems must balance the needs of all passengers, including those with bicycles and those without.

Dwell time. Regardless of how efficient a cyclist is, boarding and de-boarding a train with a bicycle takes longer than without. Depending on passenger loading, this additional time can increase how long a train must stay in the station, which translates to higher operating costs and longer travel times for all passengers.

Safety. Trains are moving vehicles that sometimes move unpredictably. Anything carried onboard, particularly something as heavy and unwieldy as a bicycle, has the potential to cause harm unless safely stowed, secured or held.

Bay Area rail operators accommodate bicycles to varying degrees and in myriad ways, including allowing passengers to hold their bicycles on trains space permitting, hanging them on specially-designed racks and otherwise securing them to the interior train walls.

regarding bike-onboard issues and is taking measures to improve bicycle parking at its stations.

Bicycles are not permitted on Muni's historic streetcars, cable cars or Muni Metro light-rail vehicles, although a *Bicycles on Light-Rail Vehicles* study is planned to begin in 2008/09. VTA light-rail vehicles are equipped with internal bicycle racks, which carry four bicycles per train. In addition, up to four more bicycles are permitted when the racks are full, in the turntable sections of the train.

Bicycles are permitted on all Bay Area ferry boats. Capacities vary from 11 to over 70 bicycles. All WETA boats are being designed and built to hold at least 35 bicycles.

Table 4.3: Bicycle access to Bay Area's 10 largest transit operators

Transit Operator	Bicycle Coordinator	Bike Planning	Bike Parking Inventory	Bikes (#) on/in vehicles[1]
AC Transit	—	*Designing w/Transit* (2002)	No	Front rack on standard buses (2) Front rack plus luggage bay on transbay buses (4-6)
Amtrak[2]	—	*State Rail Plan* (2005)	No	Yes (# not specified)
Bay Area Rapid Transit (BART)	✓	*Bicycle Access & Parking Plan* (2002)	✓	Yes (# not specified; peak hour restriction)
Caltrain	—	*Caltrain Bicycle Plan* (expected 2008)	✓	Yes (# depends on equipment & # of equipped cars; northernmost car)
(Contra Costa) County Connection	—	*Short Range Transit Plan* (2008)	No	Front rack or undercarriage (2) Inside (2)[3]
Golden Gate Transit	—	*Short Range Transit Plan* (2007)	✓	Front rack (2)[4] Luggage bays on 45' buses (2)
San Francisco Municipal Railway (Muni)	[5]	*San Francisco Bicycle Plan* (2005)	No	Front rack on buses only
SamTrans	—	*Short Range Transit Plan* (2008)	No	Front rack (2) Inside (2)[3]
Valley Transportation Authority (VTA)	✓	*Santa Clara Countywide Bicycle Plan* (2000)[6]	✓	Bus: Front rack (2); Inside (2)[3] Light-rail: Inside (8)
Water Emergency Transportation Authority (WETA)	—	Technical designs	No	Yes

No: Agency neither owns nor operates bicycle parking.

[1] Racks with a capacity of two-to-three bicycles are mounted on the front of most Bay Area transit buses.

[2] Amtrak operates the Capitol Corridor and San Joaquin rail lines.

[3] Passenger and wheelchair load permitting.

[4] Exception: GGT routes 40 and 42 accommodate bicycles onboard buses.

[5] No, although the San Francisco Bicycle Program is involved in many Muni projects.

[6] VTA wrote the *Countywide Bicycle Plan* as the Congestion management agency, rather than as the transit agency.

Emerging bicycle innovations

In the seven years since the original *Regional Bicycle Plan* was adopted, many Bay Area jurisdictions have developed, are experimenting with and are considering specially-designed roadway treatments, specially-designed traffic signal, new methods of bicycle parking and other innovations to encourage bicycling and make it safer. This section describes these innovations, including those in use locally as well as those from other parts of the country and world that could have promising Bay Area applications. Detailed guidance on when and where each is appropriate is provided in MTC's Bicycle and Pedestrian Safety Toolbox, which is described in Chapter 3, and in some of the resources that are summarized in Appendix G.

Roadway improvements

Bicycle boulevards

Bicycle boulevards are roadways that are shared by cyclists and motorists, but which prioritize bicycles through the use of diverters and other traffic controls. Bike boulevards can reduce crashes from wrong way riding, improper passing and excessive motor vehicle speeds. Bicycle boulevards are most effective when a grid system is in place so motor vehicles can use a parallel route and cyclists can follow a bike boulevard to within a block or two of their destination.

Bicycles can traverse the length of bicycle boulevards, but through car traffic is prohibited. Special bicycle stencils and signs are used on bicycle boulevards. Stop signs are often turned on these roadways to prevent cyclists from having to stop at each intersection, and budget permitting signals are installed at busy intersections to allow safe cyclist crossings. The City of Berkeley has the most extensive network in the Bay Area, but there are bicycle boulevards in the cities of Palo Alto and Emeryville.

Sharrows

Sharrows are pavement markings along Class III bike routes designed to alert motorists to the presence of bicyclists and to indicate to bicyclists where they should ride to avoid the "door zone" adjacent to parked cars.

CLASSES OF BICYCLE FACILITY

The California Streets and Highway Code and Caltrans Highway Design Manual define three classes of "bikeway," a facility that is provided primarily for bicycle travel:

Class I Bikeway (Bike Path)
Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.
Cost: high

Class II Bikeway (Bike Lane)
Provides a striped lane for one-way bike travel on a street or highway.
Cost: medium

Class III Bikeway (Bike Route)
Provides for shared use with pedestrian or motor vehicle traffic.
Cost: low

Under the guidelines proposed for inclusion in the revised *Manual on Uniform Traffic Control Devices,* sharrows would be indicated for stretches of road with narrow travel lanes adjacent to parked cars where agencies are unable to incorporate a bicycle lane due to right-of-way constraints.

A sharrow in San Francisco

The *San Francisco Shared Lane Pavement Markings: Improving Bicycle Safety* study found that implementing these pavement markings improves the following behaviors: sidewalk riding; wrong-way riding; distance cyclists ride from parked cars; distance cyclists ride from cars in travel lanes; and distance between auto drivers in travel lane and parked cars (when no bicycles present). Other Bay Area cities currently using sharrows include Berkeley (Gilman Street), San José (San Fernando Street and Park Avenue) and San Rafael (14 routes throughout the city).

A contra-flow bicycle lane in London, UK

Contra-flow bicycle lanes

Contra-flow bicycle lanes allow bicyclists to travel in the opposite direction as motor vehicle traffic on one-way streets, thereby providing cyclists with a direct route and avoiding the need to traverse additional blocks to reach their destination. These lanes are clearly separated from opposing lanes with double yellow lines and, depending on conditions, sometimes have partial separation at intersections or mid-block, or complete separation. Factors to be considered during design include vehicle and bicycle turning movements, vehicle and bicycle ADT (average daily traffic), available

street width, existence of on-street parking and rate of turnover, and transit routes. There are contra-flow lanes in San Francisco and Santa Cruz.

Colored pavement

Colored pavement is used to increase the visibility of bikeways or, more commonly, zones with a high potential for motor vehicle/bicycle conflicts, by indicating cyclist right-of-way with a distinctive color. This convention is designed to remind motorists that they are crossing or adjacent to an area where they can expect to see cyclists and to take extra caution. Colored pavement can be used for very short sections of pavement (such as where a trail crosses an intersection) or for the full length of a bike lane.

On the down side, colored pavement can create a false sense of security for cyclists; confuse motorists since the technique is new and unfamiliar; and have high initial and maintenance costs. Options for creating colored pavement have varying degrees of permanence. Agencies interested in experimenting with colored pavement on a temporary basis can use regular paint or tennis court paint (for green lanes). These paints fade quickly and must be reapplied to maintain an impact. A more permanent option is to embed color in the last lift of an asphalt overlay, although reapplication requires a grind-out and re-paving.

Blue bicycle lanes in Sunnyvale

Portland, Ore. is the primary U.S. city using colored bike lanes; however, Sunnyvale is experimenting with blue bike pavement and Petaluma is trying out red bike pavement. The city of San Francisco has requested permission to experiment with colored bicycle lanes from the California Traffic Control Devices Committee, the first step toward establishing guidelines for the use of colored lanes.

Traffic signal accommodations

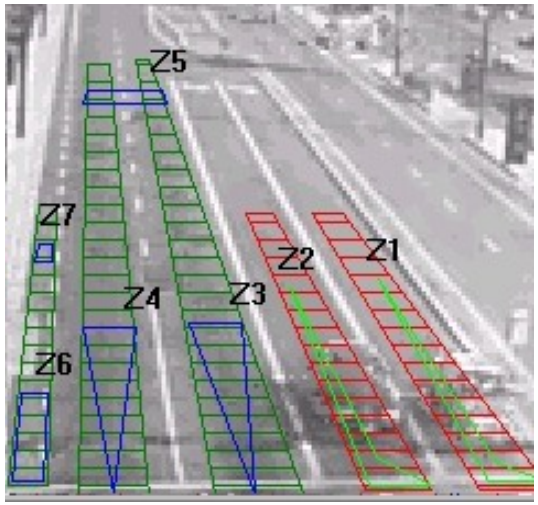
Traffic signal detection

Like in-pavement loop detectors, which have been in use throughout the Bay Area for decades, video detection allows bicyclists to trigger traffic signals at intersections. The technology uses "detection zones" for motorists and cyclists (see image) and is most often used at signalized intersections with dedicated bicycle lanes and that are already equipped with motor vehicle video detection.

Video detection is superior to loops because it can detect any bicycle, regardless of frame material, and is not disrupted by asphalt work or other maintenance. However, if a bicyclist does not stop in the detection zone, the camera can miss her, thereby leaving the signal phase on red in the cyclist's direction of travel. Furthermore, this technology is compromised by weather conditions, such as heavy fog and bright sunlight. Video detection is currently in use in Santa Rosa.

Senate Bill 1581, signed into law by Governor Schwarzenegger in January 2008, adds a section to the California Vehicle code requiring new traffic signals to detect

bicycles and motorcycles. The bill does not apply to existing signals, however. Caltrans is currently charged with developing new signal detection method guidelines for local jurisdictions.



Video detection zones (Zones Z7 and Z6 are bicycle zones.)

Bicycle signals

Bicycle signals are traffic signals equipped with signal heads that apply exclusively to cyclists. Rather than showing simple red, yellow or green lights, these specially designed signals show red, yellow or green bicycle icons, and can be used in conjunction with a pedestrian phase. Since the California Vehicle Code requires bicyclists, like autos, to obey traffic signals, local municipal codes must be changed to allow bicycles to obey bicycle signals instead.

The city of Davis has installed three of these signals at tee-intersections, such as where a bicycle path meets an intersection. The city of San Francisco is planning to install a bicycle signal at Fell Street and Masonic Avenue as part of improvements to that intersection.

Bicycle boxes

A Bicycle Box is an area designated for cyclists to wait at an intersection during a red signal phase. Cyclists are more visible in the box and this treatment reduces conflicts by designating the correct position for cars and cyclists at intersections. This waiting area – in front of motor vehicles, but behind the crosswalk – is typically painted a contrasting color and contains a bicycle stencil in the middle of the box. In order to provide maximum safety to bicycles, cars at these intersections are prohibited from making right-hand turns on red.

Bicycle boxes increase safety by preventing a common collision at intersections known as the "right hook" where a vehicle making a right turn hits a cyclist proceeding straight through the intersection. Bicycle boxes are widely used in Europe and a few American cities have started to install them, including Cambridge, Ma. and Portland, Ore.

New methods of bicycle parking

According to the Association of Pedestrian and Bicycle Professionals, the lack of secure bicycle parking keeps many people from using their bikes for basic transportation. Many people are deterred from riding to work, school, shopping and other destinations, and instead drive, because of an experience with theft or the threat of

theft. Providing a secure place to store bikes at cyclists' destinations is a key component of a robust regional bicycling network.

Many Bay Area employers, jurisdictions and other public agencies have experimented with various bicycle parking designs for decades, including electronic lockers, bicycle stations, and various types of bicycle racks. This section provides an overview of these bicycle parking innovations and a brief discussion of the situations in which each is most appropriate.

Electronic lockers

For bicyclists who need to leave their bicycles for long periods of time at transit stations or the workplace, security is a key concern. Long-term bicycle parking solutions have historically been limited to lockers, bicycle "lids," and other options that provide sheltered parking controlled with a key or padlock. The primary shortcoming of bicycle lockers is that just one user holds the key to each locker, leaving many lockers frequently empty but unavailable for rental to casual cyclists. Furthermore, while an agency may have the resources to purchase and install bicycle lockers, maintenance and administration are ongoing challenges. Lockers may be abandoned or vandalized, and frequently there are insufficient resources to maintain an accurate list of current users or respond to potential locker-renters in a timely manner.

Opening an electronic bicycle locker with a smart card

One solution to the challenges posed by traditional bicycle lockers is the electronic locker, which is rented on an hourly basis on demand, rather than being reserved for months at a time by a single user. This allows each locker to be used by many people over a given period of time, increasing the number of bicycles stored in the lockers. Electronic lockers typically charge a small fee to discourage misuse, which is paid with a specially-designed debit card. Features that are currently being considered by BART and cities such as Berkeley and Oakland include compatibility with the TransLink® universal transit card and an online reservation system.

Electronic lockers are currently available at the Belmont and Sunnyvale Caltrain stations, the 12th Street, 19th Street and El Cerrito Plaza BART stations, the Harbor Bay ferry terminal and new city parking structure in the city of Alameda, and in downtown Palo Alto. BART is planning to install hundreds of eLockers by 2008. At present, an outstanding issue is whether or not all locker payment systems will be compatible.

Bicycle stations

Bicycle stations offer attended or automated long-term bicycle parking. Other services can also be available, such as bicycle repairs, sharing, rentals and retail sales. Bicycle stations at the Downtown Berkeley and Embarcadero BART stations and the Palo

Alto Caltrain station are operated by BikeStation, an organization that serves members and nonmembers by contracting with local partners to manage bicycle parking, service and retail facilities. In addition, there are other, independently operated Bay Area bicycle stations at the Fruitvale BART and San Francisco Caltrain stations.

The annual operating cost of a bicycle station range from $25,000 for a small, unstaffed facility to $120,000-$150,000 for a fully staffed, full-service facility. Capital costs range from $25,000 for a secure room or cage to over $3 million for a more extensive facility. Bicycle stations have struggled to identify long-term revenue sources to cover their operating costs and are often subsidized by outside funding, including membership fees, grants and operating funds from transit agencies.

Retrofitted Parking Meters

Traditional parking meters each serve a single parked car. On a given block face (depending on its length), there can be up to 20 meters. This proliferation of meters is costly to administer, creates sidewalk obstructions and the meters themselves are easy to vandalize. However, these meters also serve as de facto bicycle parking, often allowing cyclists to lock their bicycles to a parking meter directly in front of their destination which increases cyclists' sense of security.

Several Bay Area cities, including Redwood City, Berkeley and Oakland, are replacing parking meters with parking kiosks, which each serve between three and five parking spaces. These kiosks allow motorists to use change, dollar bills or credit cards; are difficult to vandalize and easier to administer; and cut down on sidewalk obstructions. However, because the design of parking kiosks does not allow a bicycle to be attached, an inadvertent side effect is a loss of bicycle parking, which is particularly problematic in areas with few bicycle parking racks.

Rather than remove all of the old parking meters, the cities of Berkeley and Oakland have retrofitted some original meters for bicycle parking. After meter heads were removed in Berkeley, a metal ring was welded to the remaining post to allow two bikes to be securely attached. On blocks where the city of Oakland installs parking kiosks, they leave two meters per block face and attach a distinctive yellow bicycle parking sticker to each, but remove the internal metering mechanisms. This arrangement preserves some bike parking spaces, but has been confusing to some motorists.

Other Bicycle Storage

Bicycle stations at the Palo Alto Caltrain station and Berkeley and Embarcadero BART stations have had success with double-stacked bicycle parking. Double-decker storage racks are available in units that hold eight, 10, 12, 14 or 16 bicycles at one time. Because loading and removing a bicycle from the upper level can be difficult, these racks may be best used where there is an attendant on duty; however, the storage

units also work with U-locks and cable locks.

Other innovative parking technologies are currently employed outside the United States. In Wales, Cyclepods — sometimes called "bicycle trees" — offer room for eight bicycles parked vertically, which minimizes the rack's footprint by 30 percent, compared to traditional horizontal racks. Vertical racks made by U.S. manufacturers may also be a viable option for bicycle parking.

Other innovations

Stairway channels

Bicycle stairway channels are narrow ramps located adjacent to stairwells – often directly beneath the handrail – that allow cyclists to wheel a bicycle up or down a flight of stairs. These ramps, which are typically used at transit stations, increase the ease of using transit by reducing the effort needed to transport a bike up and down stairs, especially a bicycle with full saddlebags.

The San Mateo Caltrain station and the VTA Great Mall light-rail transit station have stair ramps. After extensive design work, bicycle stair ramps were installed at the 16th/Mission BART station in San Francisco in March 2007 for a six-month pilot program. BART is developing facility design criteria and standard specifications for the installation of stair ramps at other BART stations.

Bicycle-sharing

Bicycle-sharing is an arrangement whereby a pool of bicycles is available on demand in a particular geographic area – usually a compact downtown district. Individuals can check out a bike from one of many locations and return it to the same or to a different bike-sharing location. Customers typically use shared bikes for trips that are too far to walk, to link with public transit or just to enjoy a ride on a beautiful day.

Theft has historically been the biggest challenge to bicycle-sharing programs. The ability to identify customers without adding a time-consuming and labor-intensive check-out process is essential to these programs' success. Recent smart-card technology has allowed bike-sharing programs to blossom in more than a dozen European cities, including Paris, Vienna and Copenhagen. Civic leaders in Lyon, France attribute a 4 percent dip in auto traffic to that city's bike-sharing system. Paris's Velib system provides 15,000 bicycles throughout the city, which are used for a total of 75,000 daily trips.

Closer to home, Washington D.C. is experimenting with a 200-bicycle fleet of shared bicycles, and Portland, Ore. and New York City are considering such a move. The Los Angeles County Metropolitan Transportation Authority (MTA) is currently negotiating for a bicycle-sharing program in San Francisco.

Bicycle subsidy programs

The Santa Cruz County Regional Transportation Commission offers a $200 bicycle subsidy purchase program for electric and folding bicycles. The program is

administered through a local non-profit that provides a mandatory bicycle education and skills class prior to the bicycle purchase. A check is sent to the participant that must be used towards the purchase of a new bicycle at participating bicycle shops.

The bicycle subsidy program seeks to encourage transit passengers to bring their bikes inside local buses when front-loading racks are filled. These bikes also appeal to residents living in small housing units, who might not otherwise have room for a bicycle.

Some private employers and universities in the United States offer bicycle purchase subsidies, while in countries like the Netherlands, employees can purchase bikes pre-tax every three years.

Traffic laws

Unlike some states, the California Vehicle Code confers the same rights and responsibilities to bicycles as to motor vehicles. Bicycles are permitted anywhere on the roadway, except where explicitly prohibited.

Several states go farther and have other laws to encourage bicycling, improve safety and increase awareness of cycling. Arizona and New Hampshire have laws requiring a minimum 3-foot buffer between motor vehicles and the bicycles they are passing, although some feel that requiring half the width of the travel lane is more appropriate. Defining a minimum distance for safe passing provides an awareness that motorists need to provide cyclists with enough clearance to avoid a sideswipe. Even if there is no contact, large vehicles can churn up enough air to push cyclists a few feet from their line of travel. States such as Ohio, Vermont, Maryland, Oregon and California have considered safe passing laws to improve safety of cyclists.

Idaho has unique laws for cyclists at intersections controlled by stop signs or stoplights, unlike anything currently on the books in California. Since 1982 the Idaho motor vehicle code allows cyclists to treat stop signs as yield signs. And, while cyclists are still required to stop at stoplights during the red phase, since 2005, they have been permitted to proceed through signalized intersections if clear.

The Idaho law was passed in recognition of the infeasibility of retrofitting all signals to detect bicycles. Idaho police and Department of Transportation officials tout the safety benefit of the law in that it allows cyclists to clear intersections before turning vehicles and where parked cars on the far side of the intersection squeeze cyclists into narrow traffic lanes. Several other states, such as Minnesota, Montana, and Oregon, have considered or are considering similar laws for cyclists. MTC has conducted research on the concept.